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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/423,746	11/15/1999	NILO FAGIOLINI	32232-152197	7109

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SPENCER & FRANK
1100 NEW YORK AVENUE NW
SUITE 300 EAST
WASHINGTON, DC 200053955

[REDACTED] EXAMINER

VANOY, TIMOTHY C

ART UNIT	PAPER NUMBER
1754	17

DATE MAILED: 05/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

MK-17

Office Action Summary

Application No.	Applicant(s)
09-423,746	FAGIOLINI et al.
Examiner VANOVY	Group Art Unit 1754

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

Responsive to communication(s) filed on Apr. 12 2002
 This action is **FINAL**.

- Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

<input checked="" type="checkbox"/> Claim(s) <u>1-10, 12 AND 13</u>	is/are pending in the application.
Of the above claim(s) _____	is/are withdrawn from consideration.
<input type="checkbox"/> Claim(s) _____	is/are allowed.
<input checked="" type="checkbox"/> Claim(s) <u>1-10, 12 AND 13</u>	is/are rejected.
<input checked="" type="checkbox"/> Claim(s) <u>1</u>	is/are objected to.
<input type="checkbox"/> Claim(s) _____	are subject to restriction or election requirement

Application Papers

- The proposed drawing correction, filed on _____ is approved disapproved.
 The drawing(s) filed on _____ is/are objected to by the Examiner
 The specification is objected to by the Examiner.
 The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

All Some* None of the:

- Certified copies of the priority documents have been received.
 Certified copies of the priority documents have been received in Application No. _____
 Copies of the certified copies of the priority documents have been received
 in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- | | |
|--|---|
| <input type="checkbox"/> Information Disclosure Statement(s), PTO-1449, Paper No(s). _____ | <input type="checkbox"/> Interview Summary, PTO-413 |
| <input checked="" type="checkbox"/> Notice of Reference(s) Cited, PTO-892 | <input type="checkbox"/> Notice of Informal Patent Application, PTO-152 |
| <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review, PTO-948 | <input type="checkbox"/> Other _____ |

Office Action Summary

DETAILED ACTION

Continued Prosecution Application

The Request mailed Nov. 19, 2001 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09-423,746 is acceptable and a CPA has been established. An action on the CPA follows.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

- Rej* a) In claim 1, "μ" should be replaced with "μm" as supported on pg. 3 ln. 22 in the specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

- Rej* a) Claim 13 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Neither specification on pg. 3 ln. 24

to pg. 4 ln. 4 or in claim 13 explain how D₉₀ can represent the diameter at which 90% of the particles have a diameter less than D₉₀. It seems that one would have to know what the D₉₀ is on the right side of "represents" in claim 13 in order to determine the D₉₀ on the left side of "represents". A similar rejection is made for the corresponding D₅₀ and D₁₀ expressions set forth in claim 13.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-10, 12 and 13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 6,171,567 B1 in view of the English translation of DE 41 00 645 A1.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of 09-423,746 and U. S. Pat. 6,171,567 B1 disclose obvious variations of the same method for cleaning gas with a composition comprising sodium bicarbonate.

The difference between the Applicants' claims and U. S. Pat. 6,171,567 B1 is that Applicants' claim 1 also calls for the presence of either lignite coke, magnesium oxide, magnesium hydroxide, mixtures of magnesium oxide and magnesium hydroxide and magnesium hydroxycarbonate.

DE 41 00 645 A1 is drawn to the same art of cleaning gas with a composition that may contain not only the sodium bicarbonate of claim 1 of 09-423,746 and claim 1 of U. S. Pat. 6,171,567 but also a secondary component, which may be the same coke, magnesium, oxide, etc recited in the claims of 09-423,746 (please see pg. 4, 2nd, 3rd and 4th full paragraphs and claims 1, 7 and 8 in the English translation of DE 41 00 645 A1). Pg. 4, 5th full paragraph of the English translation of DE 41 00 645 explains that the advantages of (at least the surface active agent (i. e. the coke)) is that numerous other pollutants can also be removed from the gas, such as volatile heavy metals, dioxins, furans, etc.

It would have been obvious to one of ordinary skill in the art at the time the invention was made *to modify* the process and composition disclosed in the claims of U. S. Pat. 6,171,567 by *including* at least one of the coke, magnesium, oxide, etc. disclosed on pg. 4 in the English translation of DE 41 00 645 *into the composition* described in the claims of U. S. Pat. 6,171,567, in the manner called for in the Applicants' claims, because of the expected advantage of removing even more and different kinds of pollutants out of the gas, as fairly taught on pg. 4 in the English translation of DE 41 00 645 A1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The person having "ordinary skill in the art" has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. The Applicants are advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 1-10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over German Patent Doc. No. DE 41 00 645 A1 to Regler et al. in view of WO 95/19835 to Fagiolini.

The English abstract of the Regler et al. application discloses a method for removing sulfur dioxide and hydrogen chloride out of a gas by contacting the gas with a reagent comprising:

- (1) what appears to be at least one component to include NaHCO_3 ; MgO , Mg(OH)_2 , etc. . . , and (optionally)
- (2) an activated charcoal or coke (especially lignite), so that (evidently) the reagent reacts with the sulfur dioxide and hydrogen chloride in the gas to produce a cleaned gas and reaction products, and then (evidently) the reaction products are filtered out of the gas.

The difference between the Applicants' claims and the Regler et al. application is that the Applicants' claims call for using a combination of the sodium bicarbonate and the magnesium compound (whereas, evidently, Regler et al. sets forth the use of a plurality of reagents with the same sodium bicarbonate and magnesium compound being among them), however it is submitted that this difference would have been obvious to one of ordinary skill in the art at the time the invention was made because the recitation of the same species in the Markush grouping of species in the English abstract of the Regler et al. application renders obvious the use of any combination of the recited species for the same purpose taught in the Regler et al. application.

The limitations of Applicants' claim 1: ". . . being devoid of silica. . ." and in claim 12: ". . . said composition is devoid of silica which interferes with said purification. . ." are noted but are submitted to be obvious from the Example and also claim 1 of the English translation of DE 41 00 645 A1 which do not require or mention the presence of any of the "surface active substances" mentioned on pg. 4, 4th full paragraph in the English translation of DE 41 00 645 A1 (i. e. activated charcoal, activated coke, for example, brown coal-hearth furnace coke, activated aluminum oxide, silica gel, kieselguhr and/or zeolites). Since neither the independent claim 1 or Example in the English translation of DE 41 00 645 A1 require, mention or suggest the presence of silica in the composition then claim limitations requiring the absence of silica are submitted to be obvious from DE 41 00 645 A1.

The difference between the Applicants' claims and DE 41 00 645 A1 is that Applicants' claims 1 and 13 define the particle size of the composition as having a mean particle size that is less than 50 μm . and a particle slope that is less than .5.

It appears that the only description of particle size in DE 41 00 645 A1 is set forth on pg. 4, 3rd full paragraph in the English translation where it is set forth that the sodium hydrogen carbonate is used as a "powder" and that the alkaline earth compound is used as a "fine powdery material". There is no evidence of record establishing that there is any difference at all between the Applicants' particle size of mean diameter that is less than 50 μ and DE 41 00 645's particle size that is "powdery" or "fine powdery". *Prima facie*, it would reasonably seem that there is no unobvious difference between the Applicants' particle sizes and the particle sizes of DE 41 00 645 A1, and there is no

evidence establishing otherwise: please see the discussion of the court decisions set forth in section 2145(I) in the MPEP (8th ed.) for further details.

WO 95/19835 is drawn to the same art of cleaning gases with a composition comprising sodium bicarbonate particles and the particle size distribution of the composition is defined by an average particle diameter that is less than 0.050 mm. and a particle size slope that is less than 5 (please see the English abstract). Pg. 4 Ins. 19-21 in WO 95/19835 seem to suggest that this particle size distribution is important for the quality of the composition.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process and composition of DE 41 00 645 A1 by using particles that have a mean particle diameter that is less than 50 µm and a particle slope that is less than 5, in the manner called for in at least Applicants' claims 1 and 13, because the English abstract and pg. 4 Ins. 19-21 in WO 95/19835 seems to suggest that such a granulometry is critical for the quality for the gas cleaning operation.

Response to Arguments

The Applicants' arguments submitted in their Amendment dated Apr. 12, 2002 (paper no. 16) have been fully considered but they are not persuasive.

- a) *The Applicants argue that DE 41 00 645 A1 commends to the person of section 103(a) inclusion of a reagent which is expressly eliminated from claims 1 and 12. The elimination of an element suggested in the prior art with improved results in an area unsuggested by the prior art is the epitome of non-obviousness: please see the*

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decisions reached in In re Anthony 64 USPQ 553 at 555-556 (CCPA 1945); In re Miller 94 USPQ 88 (CCPA 1952) and In re Fleissner 121 USPQ 270 (CCPA 1959).

It is the invention of DE 41 00 645 A1 to improve the prior art composition for cleaning gas (which is a combination of (1) a "basic alkali metal compound" selected from the group sodium hydroxide, potassium hydroxide, **sodium hydrogen carbonate**, sodium carbonate, potassium hydrogen carbonate and potassium carbonate and (2) a "basic alkaline earth compound" selected from the group burned lime, calcium hydroxide, calcium carbonate, **magnesium oxide**, **magnesium hydroxide** and magnesium carbonate) and, optionally, (3) a "surface active substance" selected from the group active carbon, **activated coke** (such as **brown coal-hearth furnace coke**, activated aluminum oxide, silica gel, kieselguhr and zeolites)) by adding "nitrogen-containing, basic compounds" (please see claim 1 in the English translation of DE 41 00 645 A1 and note the optional presence of the "surface active substance" in the limitations of Applicants' claims 7 and 8). The claimed ingredients of the Applicants' composition are the same ingredients set forth in DE 41 00 645 A1: for example, compare the "sodium bicarbonate" of Applicants' claims 1 and 12 to the "sodium hydrogen carbonate" used as the "basic alkali metal compound" in DE 41 00 645 A1 and also compare the "magnesium oxide" and "magnesium hydroxide" of Applicants' claims 1 and 12 to the "magnesium oxide" and "magnesium hydroxide" used as the "basic alkaline earth compound" in DE 41 00 645 A1.

The Applicants' argument suggests that their claim 12 is patentable because the list of species used as the optional (3) "surface active substance" includes silica gel, and

Applicants' claim 12 requires that the "composition is devoid of silica", however the argument is faulty because it is *prima facie* obvious to simply select a favored species from a list of species disclosed in the prior art reference (*In re Petering*, 301 F.2d 676, 681, 133 USPQ 275, 280 (CCPA 1962)) and also reciting what species from the same list of species in the same prior art reference are not favored and excluded is *prima facie* obvious because there is nothing in DE 41 00 645 that requires that silica gel must be used as the "surface active substance" or that silica gel is the only species for "surface active substance" – in the manner that the Applicants' argument suggests. The Applicants' argument has not shown what the difference is between the "lignite coke" of Applicants' claims 1 and 12 and the "activated coke" or "brown coal-hearth coke" set forth in claim 8 in DE 41 00 645 A1.

Regarding the argument that *The elimination of an element suggested in the prior art with improved results in an area unsuggested by the prior art is the epitome of non-obviousness: please see the decisions reached in In re Anthony 64 USPQ 553 at 555-556 (CCPA 1945); In re Miller 94 USPQ 88 (CCPA 1952) and In re Fleissner 121 USPQ 270 (CCPA 1959)*, there is absolutely nothing in DE 41 00 645 A1 requiring that the optional "surface active agent" must be eliminated, and the "improved results" are no more than those obtained by using any one or a combination of the magnesium oxide, magnesium hydroxide, activated coke and/or brown coal-hearth coke disclosed in DE 41 00 645 A1 along with the sodium bicarbonate of DE 41 00 645 A1 (which is all that the Applicants' claims require).

b) *The Applicants argue that they have discovered that silica negatively affects the effectiveness of the gas cleaning process (please see the specification at pg. 5 lns. 24-34) and believe that silica-free compositions adhere better to the filter cloth than silica-containing compositions. On the other hand, the cake inhibition effect of lignite coke and/or selected magnesium compounds has proven successful.*

The courts have already determined that "Granting a patent on the discovery of an unknown but inherent function (here venting steam or vapor) "would remove from the public that which is in the public domain by virtue of its inclusion in, or obviousness from, the prior art."": please see the discussion of the *In re Wiseman*, 596 F.2d at 1022, 210 USPQ at 661 court decision set forth in section 2145(II) in the MPEP (8th ed.) – hence the argue discoveries are not seen to distinguish the claims from DE 41 00 645 A1.

c) *The Applicants argue that DE 41 00 645 A1 does not inherently disclose the particle size limitations of Applicants' claim 1 (i. e. a mean particle size diameter of less than 50 μ and a particle size slope of less than 5) because standard sodium bicarbonate does not have such sizes and has to be milled to have these particle sizes, as described in Applicants' example 1.*

It appears that the only description of particle size in DE 41 00 645 A1 is set forth on pg. 4, 3rd full paragraph in the English translation where it is set forth that the sodium hydrogen carbonate is used as a "powder" and that the alkaline earth compound is used as a "fine powdery material". The Applicants' argument is deficient because there is no evidence of record establishing that there is any difference at all between the

Applicants' particle size of mean diameter that is less than 50 μ and DE 41 00 645's particle size that is "powdery" or "fine powdery". *Prima facie*, it would reasonably seem that there is no unobvious difference between the Applicants' particle sizes and the particle sizes of DE 41 00 645 A1, and the Applicants' argument is not accompanied with any evidence establishing otherwise: please see the discussion of the court decisions set forth in section 2145(I) in the MPEP (8th ed.) for further details.

d) *The Applicants argue that their composition is non-obvious because it is intended to solve an agglutination problem and DE 41 00 645 A1 does not mention or suggest an agglutination problem – therefore, one skilled in the art would not make the particular selection from the numerous compositions disclosed in DE 41 00 645 A1 to solve a problem not even mentioned in DE 41 00 645 A1.*

The courts have already determined that "Granting a patent on the discovery of an unknown but inherent function (here venting steam or vapor) "would remove from the public that which is in the public domain by virtue of its inclusion in, or obviousness from, the prior art."": please see the discussion of the *In re Wiseman*, 596 F.2d at 1022, 210 USPQ at 661 court decision set forth in section 2145(II) in the MPEP (8th ed.) – hence the argue discoveries are not seen to distinguish the claims from DE 41 00 645 A1. No distinction is seen between the Applicants' solution to their agglutination problem by selecting the particular species disclosed in DE 41 00 645 and the "discovery of an unknown but inherent function" mentioned in the *In re Wiseman* decision attributed to that species.

e) *The Applicants argue that in order to reconstitute the Applicants' invention from DE 41 00 645, a person skilled in the art must operate successive selections.*

Such selection of particular species from a list of species disclosed in a prior art reference is, *prima facie*, obvious: please see the discussion of the *In re Petering*, 301 F.2d 676, 681, 133 USPQ 275, 280 (CCPA 1962) court decision set forth in section 2144.08(II)(A)(4)(a) in the MPEP (8th ed.).

f) *The Applicants argue that the composition of DE 41 00 645 A1 can contain silica, whereas the Applicants' claims require that their composition is substantially void of silica.*

The Applicants' argument suggests that their claim 12 is patentable because the list of species used as the optional (3) "surface active substance" includes silica gel, and Applicants' claim 12 requires that the "composition is devoid of silica", however the argument is faulty because it is *prima facie* obvious to simply select a favored species from a list of species disclosed in the prior art reference (*In re Petering*, 301 F.2d 676, 681, 133 USPQ 275, 280 (CCPA 1962)) and also reciting what species from the same list of species in the same prior art reference are not favored and excluded is *prima facie* obvious because there is nothing in DE 41 00 645 that requires that silica gel must be used as the "surface active substance" or that silica gel is the only species for "surface active substance" – in the manner that the Applicants' argument suggests.

Note that the applied U. S. Pat. 6,171,567 was brought to the Examiner's attention by the Applicants on pg. 4 in their Amendment dated Apr. 12, 2002 (paper no.

16), and that WO 95/19835 is the corresponding PCT document for U. S. Pat. 6,171,567. Since these references were introduced into the prosecution of this application by the Applicants in their Amendment mailed on Apr. 12, 2002 (paper no. 16), then the use of these newly cited references in the new grounds of rejection is not seen to be a bar to the finality of this Office Action, consistent with the criteria set forth in section 706.07(a) in the MPEP (8th ed.).

The Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 703-308-2540. The examiner can normally be reached on 8 hr. days.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached at phone no. 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-

0661. U. S. PAT. APP'L'S US 2002/0001556 A1 AND US 2002/0006372 A1
DISCLOSING SODIUM-BASED GAS CLEANING AGENTS ARE MADE OF RECORD.

jw

Timothy Vanoy/tv Timothy Vanoy

Apr. 26, 2002 Patent Examiner

Art Unit 1754


Stanley S. Silverman
Supervisory Patent Examiner
Technology Center 1700